**7) EQUATIONS OF TANGENTS AND NORMALS**

Formula:

Examples:

1) Find the equation of the tangent to the circle at the point

.

(implicit differentiation)

(rearrange to make the subject)

(now substitute (3, 4) into this expression to find m)

At the point , the gradient is: .

Therefore eqn of tangent is: =>

= >

2) A curve has parametric equations . Find the equation of the

normal to the curve at the point where .

If the equation is in parametric form, use to find the expression for the gradient.

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At the point where , gradient is:

The gradient of the normal is the negative reciprocal:

We need the coordinates of the point where

The eqn of the normal is:

Worksheet

Delta Ex 38.2 pg 379 Q1, 2